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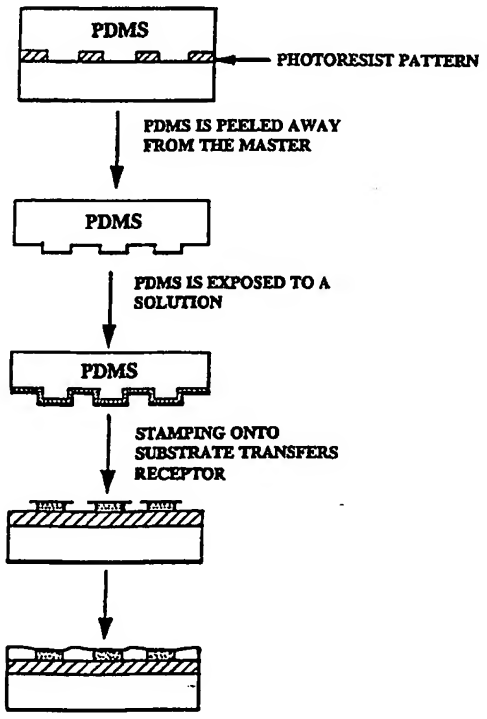
(54) Title: PATTERNED BINDING OF FUNCTIONALIZED MICROSPHERES FOR OPTICAL DIFFRACTION-BASED BIOSENSORS

(57) Abstract

The present invention provides an inexpensive and sensitive system and method for detecting analytes present in a medium. The system comprises a diffraction enhancing element, such as functionalized microspheres, which are modified such that they are capable of binding with a target analyte. Additionally, the system comprises a polymer film, which may include a metal coating, upon which is printed a specific, predetermined pattern of analyte-specific receptors. Upon attachment of a target analyte to select areas of the polymer film, either directly or with the diffraction enhancing element, diffraction of transmitted and/or reflected light occurs via the physical dimensions and defined, precise placement of the analyte. A diffraction image is produced which can be easily seen with the eye or, optionally, with a sensing device.



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INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 99/27671

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 G01N33/553 B41M3/00 G01N21/47

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B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 G01N B41M

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y	WO 98 27417 A (KIMBERLY CLARK CO) 25 June 1998 (1998-06-25) page 9, line 20 -page 10, line 10; claims 1-49; examples 1-8	23-36,41 1-22, 37-40
Y	WO 94 15193 A (SIENNA BIOTECH INC) 7 July 1994 (1994-07-07) page 21, line 17-21	19-22, 37-40
Y	US 5 599 668 A (STIMPSON DONALD I ET AL) 4 February 1997 (1997-02-04) column 15, line 18-57 column 23, line 29-39	19-22, 37-40
Y	WO 96 29629 A (HARVARD COLLEGE) 26 September 1996 (1996-09-26) page 24, line 26 -page 25, line 13	1-22

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[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

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Date of the actual completion of the international search	Date of mailing of the international search report
31 May 2000	07/06/2000

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Goetz, M

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In tional Application No
PCT/US 99/27671

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication,where appropriate, of the relevant passages	Relevant to claim No.
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